Mar 26th, 11:00 AM - 11:30 AM

What's in it for Me? Use Science History to Make the Truth Compelling

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The Obvious Answer is Not Always the Best Answer

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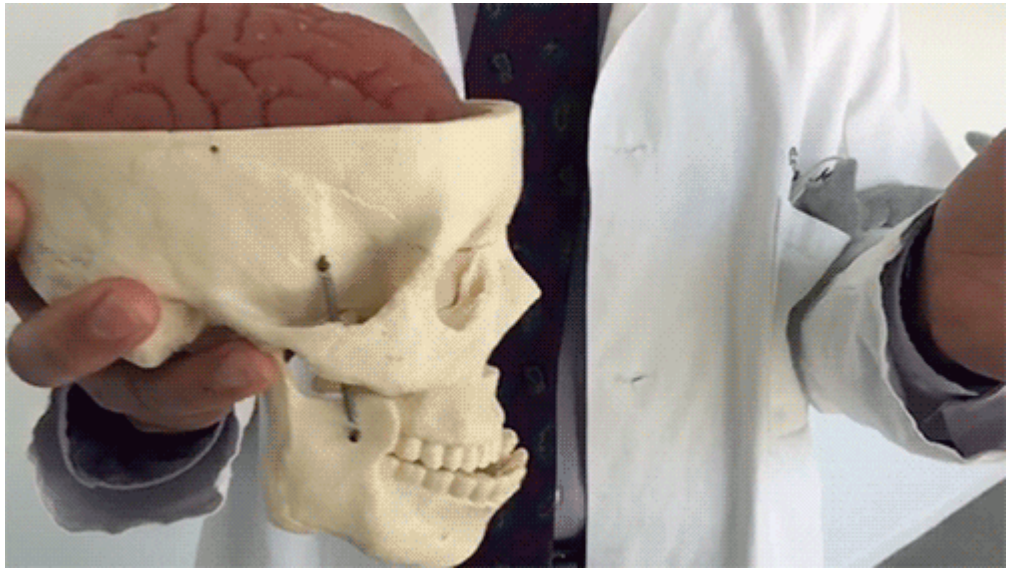
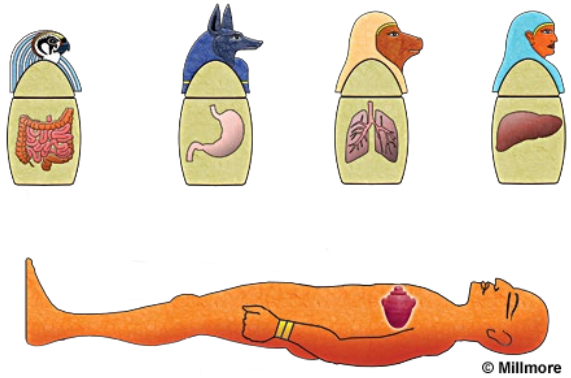
What is this gelatinous mass inside our skull?



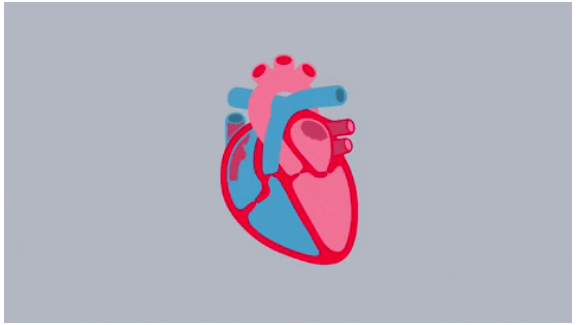
What is the mind?

- The oldest written record of “the brain” is from an ancient Egyptian papyrus which was written 1700 BCE.
- In preparation for mummification, the brain was regularly removed, for it was the heart that was assumed to be the seat of intelligence.



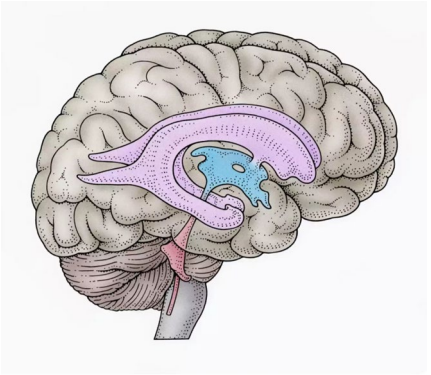
Fast forward to the Greek Philosophers...

- In 335 BCE, Greek philosopher Aristotle thought the brain was simply a radiator that kept the all -important heart from overheating.
- The idea that the heart is the center of thought is preserved in modern language, “to know it by heart.”



The center of thought relocated...

- In the first century CE the Greek physician Galen was the Roman Empire's greatest physician.
- He suggested that the brain's four ventricles were the seat of complex thought, determined personality, and controlled bodily functions.
- This was one of the first suggestions that the brain is where our memory, personality and thinking reside.



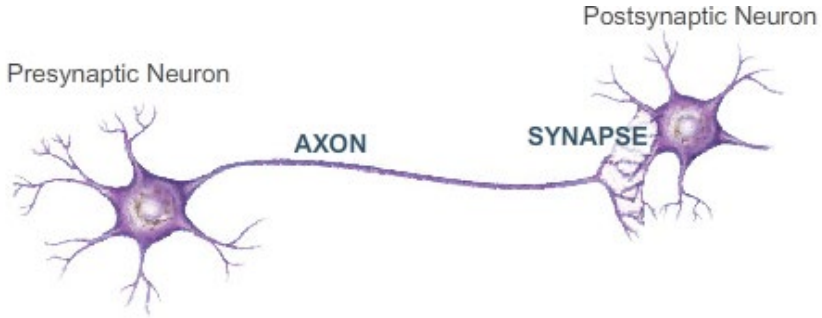
Dorling Kindersley RF/Getty Images

Skip ahead to after the Middle Ages...

- In the 16th century, Belgian anatomist Andreas Vesalius created a highly detailed map of the nervous system and argued that the ventricles are not the site of brain functions. He was correct: the ventricles are filled with the cerebrospinal fluid that nourishes brain cells and cushions the brain against physical impact.
- In 1791, Italian Luigi Galvani showed that electricity applied to nerves could make muscles contract. This showed that electrical impulses were important in the nervous system.

Technological advances reveal more about the b

- In the early 1900s, anatomists were taking advantage of microscopes and new staining methods to explore the smallest parts of the brain.
- Neuroanatomists identified that nerve cells are the building blocks of the brain.
- In 1932 synapses were discovered.



A very truncated list of discoveries over the last 9

1936 - Dale and Loewi share Nobel Prize for work on the chemical transmission between nerves

1949 - John Cade discovers that lithium is an effective treatment for bipolar depression

1950 - French chemist Paul Charpentier synthesizes chlorpromazine, an antipsychotic drug

1951 - MAO-inhibitors introduced to treat psychotics

1973 - Candace Pert and Solomon Snyder demonstrate opioid receptors in brain

1973 - Sinemet is introduced as a treatment for Parkinson's disease

1974 - M.E.Phelps, E.J.Hoffman and M.M.Ter Pogossian develop first PET scanner

1987 - Prozac introduced as treatment for depression

1993 - The gene responsible for Huntington's disease is identified

2020: Gut bacteria and the microbiome appear to influence our brain and behavior.

Far From Obvious

- Over the course of human history our understanding of the brain has developed from viewing it as little more than skull stuffing to a complex seat of personality and consciousness.
- The more we learn about the mind the more questions we generate.
- Human curiosity will uncover more mysteries through research.
- What if we had just quit after we had described the obvious?

What's in it for Me?

Lean on Students' Self-Interest to Convince them to Research Smarter

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What's in it for Students in the Short Term?

- Time savings: Stopping with the first resource you find on the web makes for a confusing time when you write your paper, as you likely haven't gotten an overview. Use a general or subject encyclopedia to save time.
- A better grade: Professors can easily tell from a bibliography that you just used web searches.
  Quick solutions for a better grade:
  - Use a library database rather than the web. Filter for peer-reviewed materials.
  - Ask your professor or a librarian, or even a student who's more advanced in your major, what the go-to resource for professionals in the field is. It is likely reliable and will quickly show what is of interest in the field now, meaning what topic will deliver multiple recent papers or other coverage.

What's in it for Students in the Long Term?

- Employers want "curious and engaged graduates who may have started with Google but then retrieved additional information in a variety of formats and identified patterns from an array of sources" (Head, 2017).
- Research skills can help you financially.
- Avoid being hoodwinked politically and in other ways by remembering that fake explanations can be attractive because they're short and easy to understand.
- Researching local political candidates before you vote can help your family because you can choose the candidate that you know best represents your interests.
- Health misinformation is rampant and going beyond social media messaging or web searches can help you improve your health or even save your life.

Sources

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